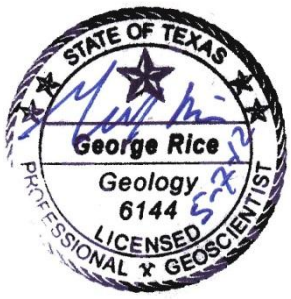
Re-evaluation of Effect of KVD Mine on Water Quality of Garcia Wells 24 and 25



George Rice
May 7, 2012

In my 2006 report I concluded: *There is no reason to believe that any domestic well has been affected by mining solutions emanating from the KVD Mine*.[1] However, after examining more recent data, I now believe that mining solutions have degraded the quality of groundwater on the Garcia property. The concentrations of uranium in Garcia well W-24 have increased from pre-mining values of less than 200 µg/L, to more than 500 µg/L[2]. This increase is probably caused by excursions[3] of mining solutions from the mine. The information I used in my re-evaluation is listed below.

- Table 1 lists all available uranium data for Garcia wells.
- Figures 1 and 3 show the locations of Garcia wells W-24 and W-25.
- Figure 2 is a plot of uranium concentrations in wells W-24 and W-25 from 1996 to 2010.
- Figure 3 shows monitor wells in which excursions of mining solutions have been detected.
- Figure 4 compares the pre-mining concentrations of uranium in monitor wells with uranium concentrations in those wells during an excursion.

Table 1 and figures 1 through 4 are attached below.

Reference

Rice, G. 2006, *Effects of URI's Kingsville Dome Mine on Groundwater Quality, Final Report*, Prepared for the Kleberg County URI Citizen Review Board, July, 2006.

[1] Rice, 2006, page 39.
[2] Well W-24 is used to water cattle and goats (personal communication with Teo Saenz, May 6, 2012).
[3] An excursion is the movement of mining solutions beyond the monitor well ring that surrounds a PAA.

Table 1
Garcia Wells
All available data as of May 5, 2012

Well ID	Date	U (ug/L)	Data Source, Notes
69A	5/22/1987	50 (U3O8)	Mark Walsh Exhibit B
69B	5/22/1987	80 (U3O8)	Mark Walsh Exhibit B
69C	5/26/1987	50 (U3O8)	Mark Walsh Exhibit B
A. Garcia	3/31/1988	11	URI/Jordan Lab
Y.C. Garcia	5/12/1988	32	TCEQ 2005, transcript of hearing
W-24/W-25[4]	12/13/1996	184	Teo Saenz, Exhibit E, Martin Utley, TDH/BRC
W-24/W-25	4/4/1997	186	URI
W-24/W-25	5/23/1997	220	URI
W-24/W-25	8/29/1997	152	URI
W-24/W-25	12/9/1997	190	URI
W-24/W-25	2/25/1998	189	URI
W-24 only	6/18/1998	152	URI, Teo Saenz, Exhibit E, Martin Utley, TDH/BRC
W-25 only	6/18/1998	167	Teo Saenz, Exhibit E, Martin Utley, TDH/BRC
W-24/W-25	8/27/1998	158	URI
W-24/W-25	11/25/1998	209	URI
W-24/W-25	3/26/1999	200	URI
W-24/W-25	6/21/1999	181	URI
W-24/W-25	8/24/2000	151	URI
W-24/W-25	9/19/2000	187	URI Split with TDH
W-24/W-25	11/6/2000	168	Teo Saenz, Exhibit E, Martin Utley, TDH/BRC
W-24/W-25	2/19/2001	184	URI
W-24/W-25	6/11/2001	179	URI
W-24/W-25	9/13/2001	160	URI
W-24/W-25	12/17/2001	240	URI
W-24/W-25	3/21/2002	164	URI
W-24/W-25	6/26/2002	141	URI
W-24/W-25	9/30/2002	172	URI
W-24/W-25	12/13/2002	188	URI
W-24/W-25	3/11/2003	180	URI

[4] Garcia wells 24 and 25 discharged into the same tank and the comingled samples were collected from the tank (memo from Mark Pelizza to George Rice, December 22, 2005).

Table 1
Garcia Wells
All available data as of May 5, 2012
(concluded)

Well ID	Date	U (ug/L)	Data Source, Notes
W-24/W-25	9/26/2003	170	URI
W-24/W-25	12/12/2003	187	URI
W-24/W-25	3/31/2004	172	URI
Garcia Well	6/29/2004	195	URI
Garcia (24?)	12/31/2005	636	URI, Note on analysis - well operational, closest to pumphouse
W-24	12/15/2008	500	ACZ Lab, GRice
W-25	12/15/2008	10.4	ACZ Lab, GRice
W-24	Spring 2010	770.75	TAMUK, Lee Clap/Yaneth Gamboa

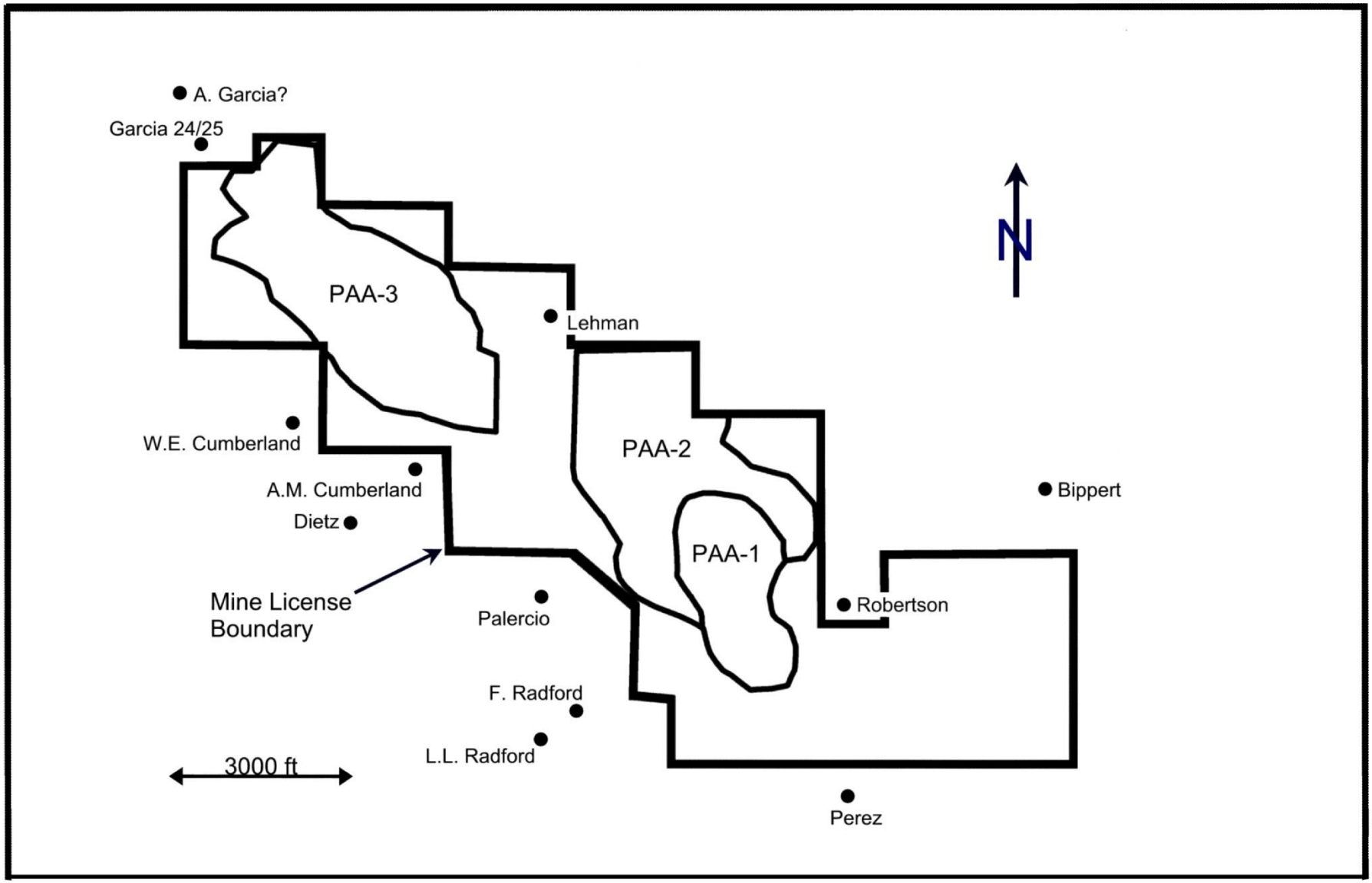


Figure 1
Approximate Locations of Domestic Wells Near KVD Mine
(Rice 2006)

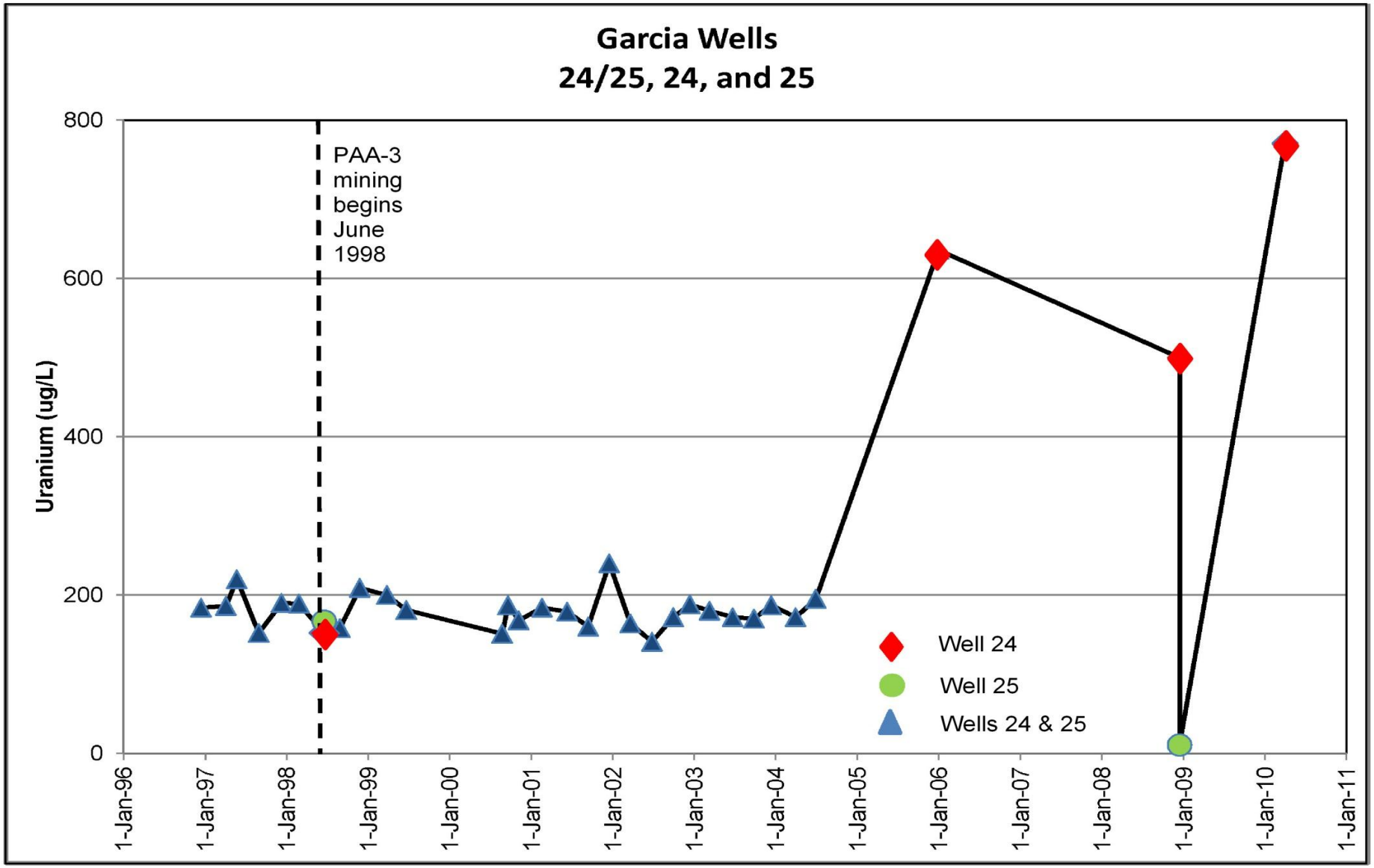

Garcia Wells
24/25, 24, and 25
Uranium (ug/L)
800
600
400
200
0
PAA-3
mining
begins
June
1998
Well 24
Well 25
Wells 24 & 25
1-Jan-96
1-Jan-97
1-Jan-98
1-Jan-99
1-Jan-00
1-Jan-01
1-Jan-02
1-Jan-03
1-Jan-04
1-Jan-05
1-Jan-06
1-Jan-07
1-Jan-08
1-Jan-09
1-Jan-10
1-Jan-11

Figure 2

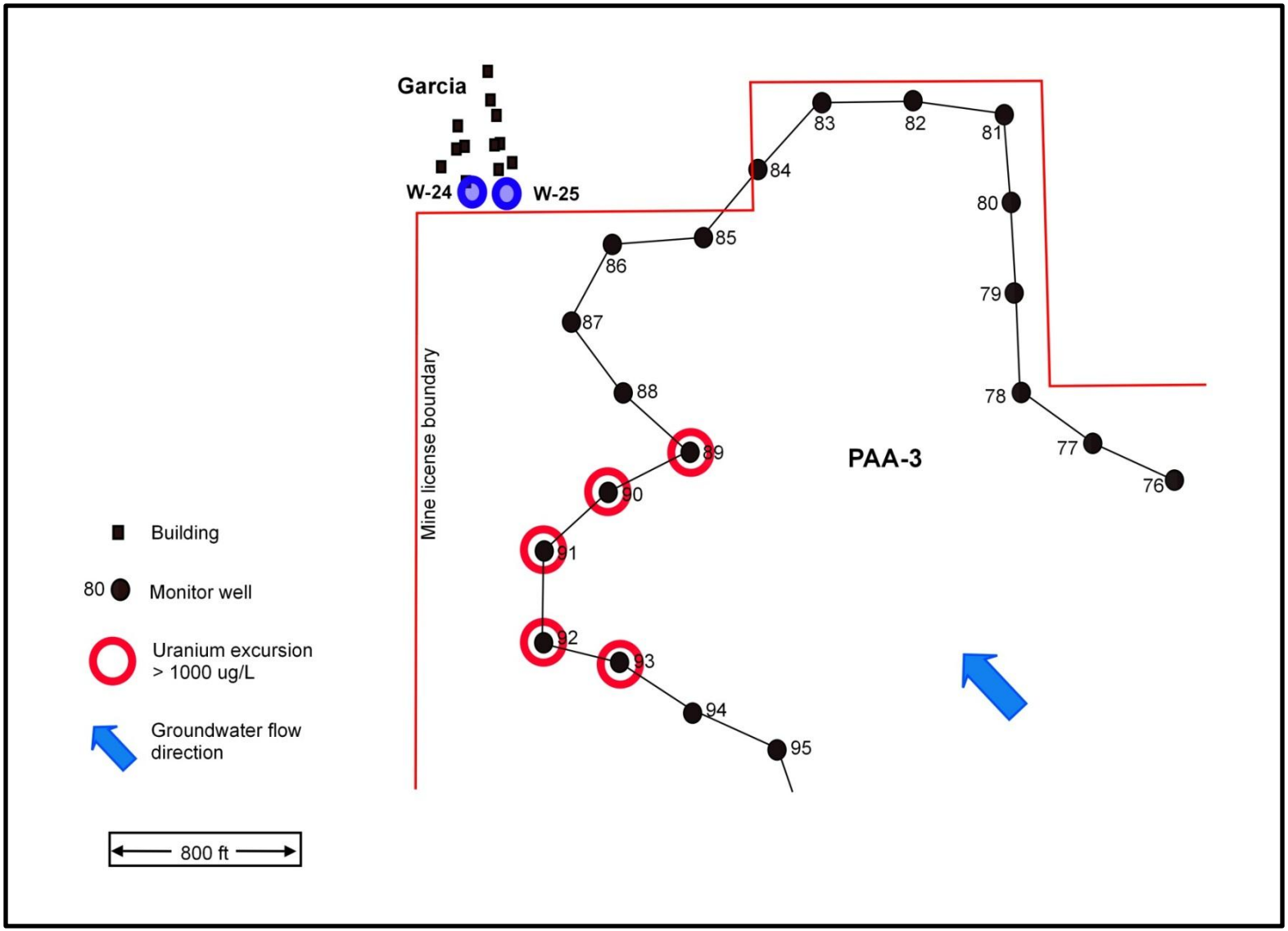
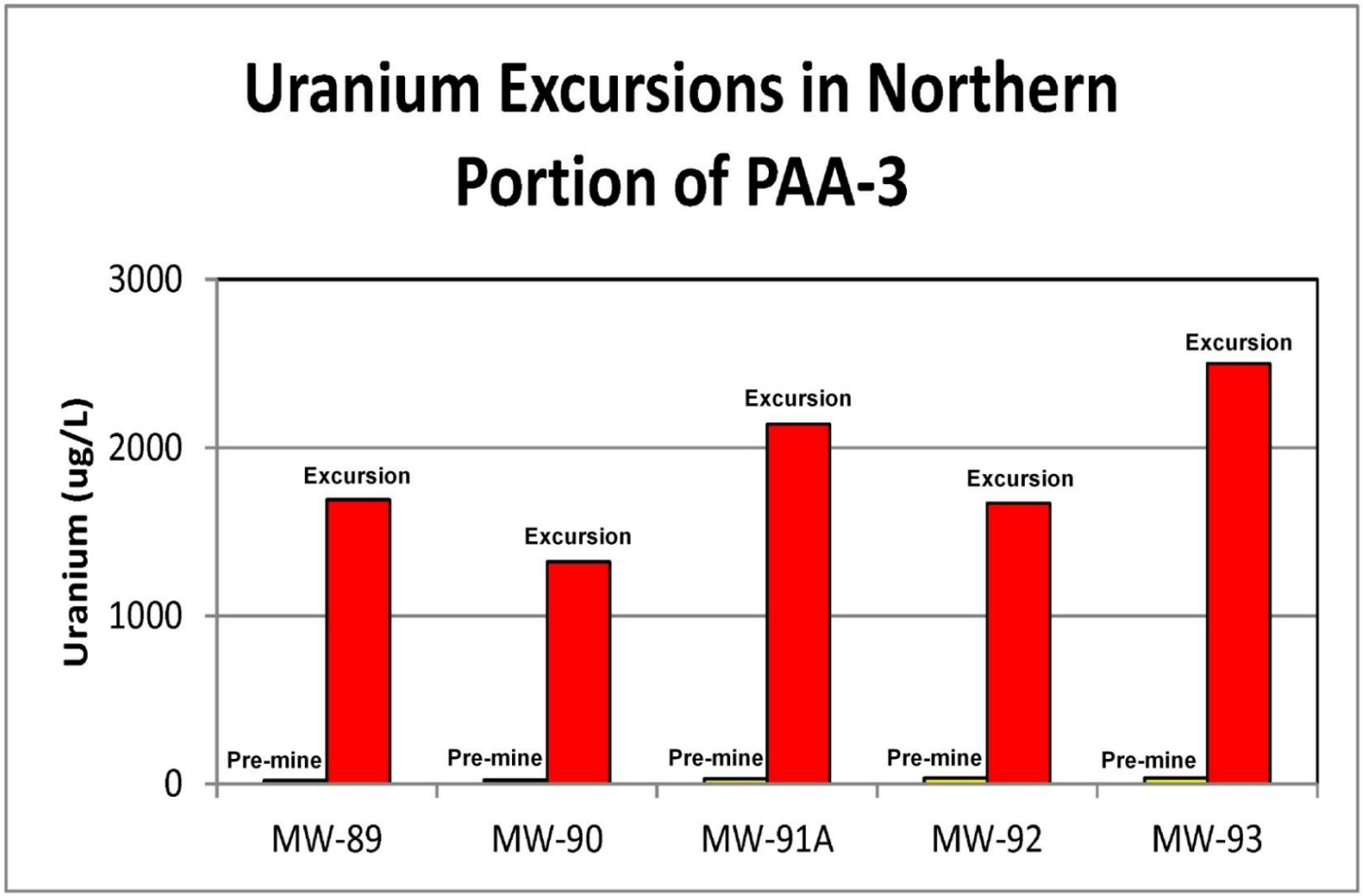


Figure 3
PAA-3 and Garcia Wells



Data sources: application for PAA-3 (URI, 1997/2002); and 2008 2nd Quarter Monitor Well Report (URI, 2008). Uranium concentrations less than 1000 ug/L are usually not reported by URI.

Note: Excursions shown occurred in 2007. Not reported to TCEQ because concentrations were less than excursion value defined in permit: 6540 ug/L.

Figure 4